PREFACE

The FY 95 Cost Report, Volume 6a - Communications/Electronics Systems, from the Operating and Support Management Information System (OSMIS) data base, is forwarded for your use and comment. OSMIS is a major portion of the Department of Defense (DoD) Visibility and Management of Operating and Support Costs (VAMOSC) Program. OSMIS, managed by the U.S. Army Cost and Economic Analysis Center (USACEAC), is the U.S. Army's source of historical operating and support (O&S) cost information for more than 350 systems deployed in tactical units – Active, Guard, and Reserve.

Department of Defense analysts have found historical O&S data to be useful in projecting O&S costs for future systems, developing O&S cost analyses, and preparing O&S estimates. The types of analyses and comparisons include the following:

- Component Cost Analyses (CCAs),
- Program Office Estimates (POEs),
- Cost Estimating Relationships (CERs),
- Cost and Operational Effectiveness Analyses (COEAs),
- Economic Analyses (EAs), and
- U.S. Army Materiel Command (AMC) Major Subordinate Commands (MSCs) weapon/materiel system O&S cost comparisons to new systems in the acquisition cycle.

This volume contains FY 91-95 historical O&S costs on major fielded weapon/materiel systems as operated within the U.S. Army Major Commands (MACOMs). Data sources used in this report are from the U.S. Army Logistics Support Activity (LOGSA), AMC's MSCs, the Industrial Operations Command (IOC), ODCSOPS, and ODCSLOG. This report was prepared by CALIBRE Systems, Inc., Falls Church, VA.

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*Section is determined by Equipment Category Code from DA Pam 738-750, Maintenance Management UPDATE 14, 1 August 1994.

SECTION 1. OVERVIEW

1.1 Introduction

The FY 95 Cost Report, Volume 6a - Communications/Electronics Systems is produced from the OSMIS data base. The report presents FY 91-95 Operating and Support (O&S) historical information for 21 communications/electronics systems, which includes Class IX consumption (repair parts and components, including kits, assemblies and subassemblies, reparables, and consumables) required for maintenance support of equipment designated for OSMIS tracking and depot/intermediate maintenance costs.

This volume presents easily locatable reference data that may be used to support analyses when comparing the following:

- Weapon systems summarized costs,
- MACOM annual, Class IX parts (reparables and consumables) costs,
- Total Army five year trend Class IX parts costs, Work Breakdown Structure (WBS),
- Depot and Intermediate Maintenance annual and five year weapon system military and civilian labor costs,
- Weapon system annual and five year trends for depot maintenance costs for End Items and Secondary Items,
- Specific National Stock Number (NSN) cost driver detail at the Total Army level for reparables and consumables, and
- Historical Class IX reparable and consumable consumption rates (quantity per system).

The entire FY 95 OSMIS Annual Cost Report consists of seven volumes:

- Volume 1- Aviation Systems (blue cover) consisting of rotary and fixed wing aircraft,
- Volume 2 - Combat Systems (yellow cover) consisting of tanks and combat vehicles,
- Volume 3 - Artillery/Missile Systems (red cover) consisting of artillery weapons, artillery support vehicles, air defense artillery and missiles, surface-to-surface missiles, and detection systems,
- Volume 4 - Tactical Systems (green cover) consisting of wheeled vehicles,

- Volume 5 - Engineer/Construction Systems (maroon cover) consisting of engineer, construction, electrical power generation, and floating equipment,
- Volume 6a - Communications/Electronics Systems (orange cover) consisting of radio receivers, teletypewriters and terminal sets, switches (voices and message), etc., and
- Volume 6b - Communications/Electronics Systems (orange cover) consisting of communications and data processing systems, radar sets, and terminals, etc.

Each volume contains an overview in Section 1, and the weapon systems cost reports are contained in Section 2. Appendix A provides a general description of the cost report formats, Appendix B contains the description of the WBS structure for the weapon/materiel systems, and Appendix C lists weapon systems in the other six volumes.

1.2 Cost Calculations

To calculate parts' costs, OSMIS extracts Class IX supply demand data from the Logistic Intelligence File (LIF) at the NSN level and then adds the Army Master Data File (AMDF) attributes to the demanded NSNs. The process further identifies a demanded NSN as either reparable or consumable, identifies the weapon system(s) to which an NSN belongs, identifies the support organization which generated the demand for the NSN, distributes these demands at the unit-level weapon/materiel system, and finally develops detailed cost summaries at the MACOM level. The Class IX Total Army costs represent the sum of the MACOM's total number of NSNs demanded (reparables and consumables) and distributed to a weapon system. The quantity demanded is multiplied by the FY 95 AMDF unit price. Net reparable costs are calculated by applying the Army Materiel Command's system technology-oriented "Commodity" Major Subordinate Commands (MSC) specific credits to NSNs designated as depot level reparables (DLRs). Determining whether an NSN is a reparable or consumable part is explained in Appendix A, Section 6. The "Commodity" MSC-specific credit rates used for Depot Level Reparables (DLRs) during OSMIS processing are shown in the table below:

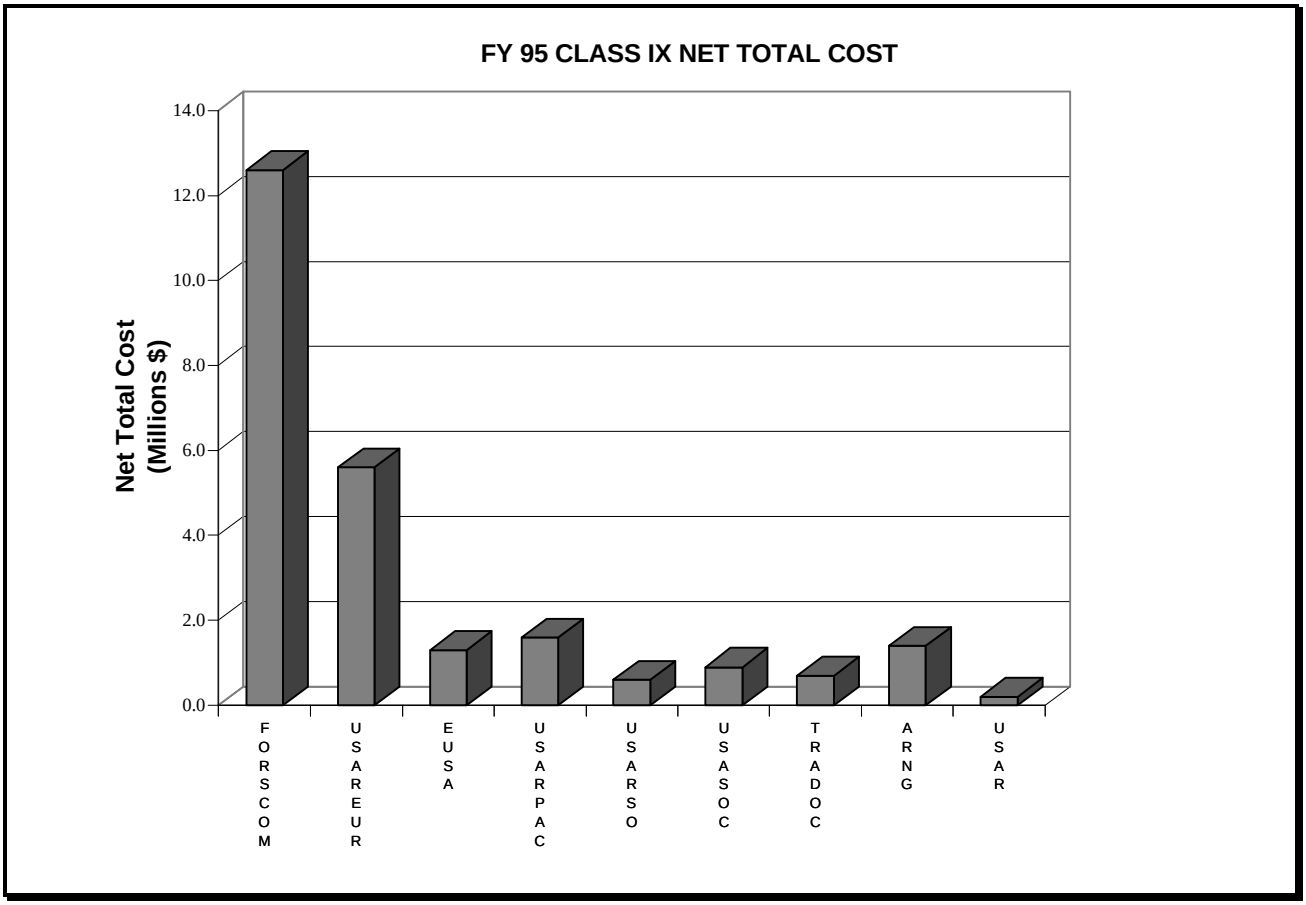
"Commodity" Major Subordinate Command (MSC) - Specific Credit Rates	
AMC "Commodity" Major Subordinate Command	Credit Rates* (Percent (%))
Armament and Chemical Acquisition and Logistics Agency (ACALA)	53.6
Aviation and Troop Support Command, Aviation (ATCOM(A))	56.6
Aviation and Troop Support Command, Troop (ATCOM(T))	54.4
Communications-Electronic Command (CECOM)	51.3
Missile Command (MICOM)	60.9
Tank-automotive and Armament Command (TACOM)	54.7
Defense Logistics Agency/General Services Administration (DLA/GSA)	None
* Rates are directed by the Office of the Deputy Chief of Staff for Logistics (ODCSLOG), Mar 95	

Consumables do not receive MSC credits. Surcharges are embedded in the AMDF unit price. All costs shown for years prior to FY 95 are inflated to represent FY 95 constant dollars.

OSMIS extracts and sums military and civilian labor costs from standard Army maintenance management information systems. For depots, OSMIS uses data from the Industrial Operations Command (IOC) Master File Maintenance (MFM) system and data from each of the AMC "Commodity" MSC's Maintenance Data Management Systems (MDMS). For intermediate level maintenance activities, civilian and military labor costs are extracted and summed using data from the Work Order Logistics File (WOLF) and the Army Manpower Cost System (AMCOS).

1.3 MACOM Weapon Systems Costs - A Total Army Look

For FY 95, the OSMIS data base recorded Class IX costs as $24.9 million for Net Reparables and Consumables for the 21 communications/electronic systems. Net Reparable costs are calculated by summing the results of multiplying reparable NSN quantities by their corresponding Unit Prices with Credit. Unit Prices with Credit are calculated by multiplying the FY 95 unit price by one minus the MSC credit rate (credit rates are shown in paragraph 1.2). The Consumable total annual costs are calculated by multiplying the NSN quantity by the FY 95 unit price - no credits. Net Reparables and Consumables are summed to determine MACOM Net Total Cost. Total Army costs show the sum of the Major Army Commands (MACOMs) Net Reparables and Consumables. The graph and table on the next page display the FY 95 MACOM Class IX Net Total Costs for aviation weapon systems contained in this report.



FY 94 Class IX Net Total Cost ($ in Millions)										
	Major Army Commands (MACOMs)									
	FORSCOM	USAREUR	EUSA	USARPAC	USARSO	USASOC	TRADOC	ARNG	USAR	Total Army
Net Reparables	7.0	4.0	0.8	0.5	0.5	0.2	0.4	0.7	0.1	14.2
Consumables	5.6	1.6	0.5	1.1	0.1	0.7	0.3	0.7	0.1	10.7
Net Total Cost	12.6	5.6	1.3	1.6	0.6	0.9	0.7	1.4	0.2	24.9

The five systems in Volume 6a with the highest Total Army Class IX net total costs in FY 95 are shown below:

Top Five Systems For Class IX Net Total Costs ($ in Millions)	
System	Net Total Costs
AN/TRC-190 MSE LOS	8.1
AN/PRC-119 SINCGARS	4.5
AN/VRC-97 MSE MSRT	3.5
AN/TTC-48V1 MSE SEN	2.4
AN/TTC-47 MSE NCS	2.2

SECTION 2

Communications/Electronic Systems

APPENDIX A

PAGE FORMATS

This appendix describes the type of information that is provided for each system in Section 2. Each section in this appendix corresponds to a page in the main body of the report. For example, the section below entitled "System Features" explains the type of information provided on the first page for each system.

1. System Features

The first page for each system contains a system identifiers block, a system description block, and a photograph or drawing of the system. The system identifiers block displays codes and acronyms specific to the materiel system. The system description block contains a brief statement of the features and capabilities of the system. The photograph or drawing provides a pictorial representation of the system. Terms used in the system identifiers block are explained in Table A-1, System Identifiers Elements.

Elements	Definitions
Nomenclature	A brief materiel system title
Standard Study Number (SSN)	A six position alphanumeric code indicating either a single item or a group of items
Line Item Number (LIN)	A six position alphanumeric code identifying an end item
National Stock Number (NSN)	A thirteen position number assigned to each item of supply purchased, stocked, or distributed within the Federal Government
Army Modernization Information Memorandum Number (AMIM NO)	A four position alphanumeric code indicating force modernization systems and the level of management visibility for that materiel system
End Item Code (EIC)	A three position alphanumeric code identifying an end item
Fuel Type	A Defense Logistic Agency (DLA) code identifying the type of fuel used by the materiel system *(Not applicable to Volume 6a systems*)

Table A-1. SYSTEM IDENTIFIERS ELEMENTS

2. Selected Components LIN List

The top half of the second page for each system contains the materiel system associated component list. This section is a compilation of major items, along with their LINs and NSNs, that are part of the system as defined by OSMIS. For selected systems, the list is representative in nature (i.e., not all the components or the variations of components are listed). OSMIS defines a materiel system as a major end item, such as an AN/PRC-119, composed of the following:

- all attached end items configured for use on the major end item, such as an ECCM filter device on an AN/PRC-119, and
- all peculiar equipment designated to support the major end item, such as system specific test and diagnostic equipment for an AN/PRC-119.

OSMIS excludes common tools and test equipment, as well as ancillary support end items (fuel trucks, portable repair shops, direct support tool sets) from the materiel system definition.

The bottom half of the page shows the Mission Design Series (MDS) name, the associated LIN, and the NSN of any system variants. Column headings for the components page are explained in Table A-2, Components & System Variants List Elements.

Elements	Definitions
Line Item Number (LIN)	A six position alphanumeric code identifying an end item
National Stock Number (NSN)	A thirteen position number assigned to each item of supply purchased, stocked, or distributed within the Federal Government
Nomenclature	A brief NSN description
Mission Design Series (MDS)	An alphanumeric code assigned to an end item

Table A-2. COMPONENTS & SYSTEM VARIANTS LIST ELEMENTS

3. FY 95 Total Army Cost Summary

The summary page displays Total Army materiel system costs and other relevant information using MACOM level supporting data that appears on the following pages. Included on this page are density, Class IX Materiel-Parts costs, depot/intermediate maintenance costs, Class III POL costs (not available), and Class V Ammunition costs (not applicable) to the materiel system. Cost averages are calculated using the Total Army costs in each category (except depot and civilian maintenance) divided by the number of systems. Depot maintenance averages are based on total costs divided by the quantity of maintenance actions completed. The intermediate maintenance averages for military and civilian labor costs/labor hours are calculated by dividing the sum of the labor costs/labor hours by the number of systems. Cost summary data and cost elements are explained in Table A-3, FY 95 Total Army Cost Summary Data and Cost Elements.

Data/Cost Elements*	Explanations
Density	Number of systems - Densities are extracted from the Continuing Balance System-Expanded (CBS-X)
Class III-POL (5.05)	The total cost of POL based on the materiel system fuel and oil consumption rates (*Not applicable to Volume 6a systems*)
Class V-Ammunition (2.11)	The cost of training ammunition to the materiel systems (*Not applicable to Volume 6a systems*)
Class IX Materiel-Parts (5.04/5.03)	The consumable and net reparable Class IX total costs for a materiel system and includes an average cost per system
Depot End Item Maintenance (5.061)	The OMA total cost of end item maintenance completed at depot level including an average cost per end item, and procurement costs
Depot Secondary Item Maintenance	The total cost of secondary item maintenance completed at depot level including an average cost per secondary item
Intermediate Maintenance	DS/GS - Total cost of military labor including average costs per system and average maintenance labor hours per system
	Civilian - Total cost of civilian labor for FORSCOM and TRADOC only, which includes average costs per system and average maintenance labor hours per system
* The numbers in parentheses refer to cost elements associated with a fielded system.	

Table A-3. FY 95 TOTAL ARMY COST SUMMARY DATA AND COST ELEMENTS

4. FY 95 MACOM Class IX Costs

Class IX reparable and consumable definitions are based on the Army implementation of DMRD 904C. A reparable, referred to as a Depot Level Reparable (DLR), is a designated or selected secondary item on which repairs can be performed at the depot or a Specialized Repair Activity (SRA). The reparable is identified using two Army Master Data File (AMDF) attributes: the Maintenance Repair Code (MRC) equal to 'D' or 'L'; or the MRC equal to 'F', 'H', or 'O' with an Automatic Return Item (ARI) code equal to 'C', 'E', 'R', or 'S'. All other Class IX items are referred to as consumables.

This page shows the FY 95 Class IX costs by materiel system, MACOM, and Total Army. The graph on this page shows the demand costs by consumables, reparables, and net reparables. Net reparables are calculated in two steps. First, an NSN's AMDF unit price (UP) with credit is calculated by multiplying the NSN's FY 95 AMDF UP without credit by one minus the FY 95 ODCSLOG-provided MSC-specific reparable credit rate. The FY 95 MSC-specific reparable credit rates are shown in Table A-4, FY 95 MSC-Specific Reparable Credit Rates. Second, the

extended cost for each NSN is calculated by multiplying the AMDF UP with credit by the quantity of NSN demands.

The NET REPS are the sum of reparable NSNs' extended costs with credit. The NET TOTAL COSTS are the sum of the CONS and NET REPS. The table below the graph displays the costs depicted by the bars in the graph. The table includes an average cost per system for each MACOM.

MSC	*FY 95 MSC-Specific Reparable Credit Rates	First Position of the MATCAT
ACALA	53.6	D, M
ATCOM(A)	56.6	H
ATCOM(T)	54.4	B
CECOM	51.3	G
MICOM	60.9	L
TACOM	54.7	K
DLA/GSA	None	E, F, J, Q, R, S, T, U
*Rates are directed by the Office of the Deputy Chief of Staff for Logistics (ODCSLOG), as of Mar 95.		

Table A-4. FY 95 MSC-SPECIFIC REPARABLE CREDIT RATES

The column headings are explained in Table A-5, FY 95 MACOM Class IX Cost Elements.

Elements	Explanations
MACOM Code	Major Army Command-Code
MACOM Name	Major Army Command-Name
Cons	The total extended cost for consumables
Reps	The total extended cost with out credit for reparables
Net Reps	The total extended cost with credit for reparables
Net Total Costs	The total extended cost for cons and net reps
Number of Systems	The number of systems are densities extracted from the Continuing Balance System - Expanded (CBS-X)
Avg Per System	The net total costs divided by the number of systems

Table A-5. FY 95 MACOM CLASS IX COST ELEMENTS

The MACOM Codes, acronyms, and names are explained in Table A-6, MACOM codes, acronyms, and names.

MACOM Codes	MACOM Acronyms	MACOM Names
FC	FORSCOM	Forces Command
E1	USAREUR	U.S. Army, Europe
P8	EUSA	Eighth U.S. Army
P1	USARPAC	U.S. Army, Pacific
SU	USARSO	U.S. Army, South
AO	USASOC	U.S. Army Special Operations Command
TC	TRADOC	Training and Doctrine Command
NG	ARNG	Army National Guard
AR	USAR	U.S. Army Reserve
TA	Total Army	Data summed for the above listed MACOMs comprises the "Total Army"

Table A-6. MACOM CODES, ACRONYMS, and NAMES

5. Five Year Total Army Class IX Costs

This page shows aggregate costs for MACOMs that represent the Total Army costs for five consecutive fiscal years. The graph shows the costs for consumables, reparables, and net reparables which are detailed in the cost table. The column headings are explained in Table A-5, FY 95 MACOM Class IX Cost Elements.

6. FY 95 Total Army Work Breakdown Structure Costs

This page provides a table showing the FY 95 Total Army Work Breakdown Structure (WBS) Costs for Class IX Materiel-Parts. The WBS structure for engineer/construction systems shown in this table are described in Appendix B. The table includes the total cost of consumables (CONS), reparables (REPS), and net reparables (NET REPS), average cost per system (Avg Per System). The NET REPS calculations are explained in paragraph 6. The last row of the table shows the totals for each of the cost columns and a Total Army average per system. The Total Army average per system is calculated by dividing the net total costs by the Total Army number of systems. The column headings are explained in Table A-7, FY 95 Total Army Work Breakdown Structure Costs Elements.

Elements	Explanations
WBS	A two position alphanumeric code identifying Work Breakdown Structure
Name	A WBS Level 2 element description
Cons	The total extended cost for consumables
Reps	The total extended cost with out credit for reparables
Net Reps	The total extended cost with credit for reparables
Net Total Costs	The sum of cons and net reps costs
Number of System	The number of systems are densities extracted from the Continuing Balance System - Expanded (CBS-X)
Avg Per System	The net total costs divided by the number of systems

Table A-7. FY 95 TOTAL ARMY WORK BREAKDOWN STRUCTURE COSTS ELEMENTS

7. Five Year Total Army Work Breakdown Structure Costs

This page shows aggregate costs for WBS that represent the total costs for five consecutive fiscal years. The column headings are explained in Table A-7, FY 95 Total Army Work Breakdown Structure Costs Elements. Similar to the FY 95 Total Army Work Breakdown Structure Costs table, this table adds a row to show the total for each of the cost columns. Further, two more rows are added at the bottom of the table to show the number of systems and an average cost per system (Avg Per System).

8. Top 40 Cost Drivers Class IX Consumables (NON-DLRs)

The NSN-level demands and cost data for the forty consumables having the greatest annual extended costs are displayed on two pages. The consumable costs are calculated by multiplying the annual quantity demanded by the FY 95 AMDF unit price. In the OSMIS process, common parts are allocated across materiel systems in proportion to their densities; therefore, the quantities of parts shown are not necessarily whole numbers. The column headings, bottom of the page data, and cost elements are explained in Table A-8, Top 40 Cost Drivers Class IX Consumables (Non-DLRs) Elements.

Elements		Explanations
NSN		A thirteen position number assigned to each item of supply purchased, stocked, or distributed within the Federal Government
Nomenclature		A brief description of the NSN
WBS		A two or three position alphanumeric code identifying Work Breakdown Structure
MRC		Maintenance Repair Code - A one position code indicating whether the item is to be repaired when unserviceable and the lowest level of maintenance authorized to perform complete repair of the item
ARI		Automatic Return Item - A one position alphabetic code which indicates items in a critical stock position, which must be returned to a designated facility without getting disposition instructions
MATCAT		A five position alphanumeric code that prescribes the Materiel Category structure detail for management of Army inventories
FY 95 AMDF Unit Price		The unit price for a NSN
FY 95 Qty		The quantity (Qty) of demands recorded for a specific NSN
Extended Cost (Qty * Unit Price)		The FY 95 Qty multiplied by the FY 95 AMDF unit price
Average Cost	Per System	The extended cost divided by the number of systems
Average Quantity	Per 100 Systems	The FY 95 Qty divided by the number of systems and multiplied by 100
FY 91-95 Five Year Average	Qty	The average NSN quantity demanded over five consecutive fiscal years
	Extended Cost	The FY 91-95 five year average Qty multiplied by the FY 95 AMDF unit price
Number of Systems (bottom of the page)		The Total Army number of systems
Top 40 (bottom of the page)		The sum of the cost drivers extended cost
Others (bottom of the page)		The sum of the non-cost drivers extended cost
Total (bottom of the page)		The total extended cost

Table A-8. COST DRIVERS CLASS IX CONSUMABLES (NON-DLRs) ELEMENTS

9. Top 40 Class IX Cost Drivers Reparables (DLRs)

The NSN-level demands and cost for the forty DLRs with the greatest annual extended costs are displayed on two pages. Reparable costs are calculated by multiplying the FY 95 Quantity (Qty) by the FY 95 AMDF unit price with credit (see Appendix A, paragraph 6 for an explanation of the unit price). In the OSMIS process, common parts are allocated across materiel systems in proportion to their densities; therefore the quantities of parts are not necessarily whole

numbers. The column headings, bottom of the page data, notes, and cost elements are explained in Table A-9, Cost Drivers Class IX Reparables Elements.

Elements		Explanations
NSN		A thirteen position number assigned to each item of supply purchased, stocked, or distributed within the Federal Government
Nomenclature		A brief description of the NSN
WBS		A two or three position alphanumeric code identifying Work Breakdown Structure
MRC		A one position code indicating whether the item is to be repaired when unserviceable and the lowest level of maintenance authorized to perform complete repair of the item
ARI		A one position alphabetic code which indicates items in a critical stock position, which must be returned to a designated facility without getting disposition instructions
MATCAT		A five position alphanumeric code that shows the Materiel Category structure detail for management of Army inventories
FY 95 AMDF Unit Price	Without Credit	The unit price for a NSN
	With Credit	The unit price multiplied by the MSC-specific reparable credit
FY 95 Qty		The quantity of demands recorded for a specific materiel system
Extended Cost with Credit (Qty * Unit Price)		The FY 95 Qty multiplied by the FY 95 AMDF unit price with credit
Average Cost With Credit	Per System	The extended cost with credit divided by the number of systems
Average Quantity	Per 100 Systems	The FY 95 Qty divided by the number of systems and multiplied by 100
FY 91-95 Five Year Average	Qty	The average NSN quantity demanded over five consecutive fiscal years
	Extended Cost With Credit	The FY 91-95 five year average Qty multiplied by the FY 95 AMDF unit price with credit
Number of Systems (bottom of the page)		The Total Army number of systems
Top 40 (bottom of the page)		The sum of the cost drivers extended cost with credit
Others (bottom of the page)		The sum of the non-cost drivers extended cost with credit
Total (bottom of the page)		The total extended cost with credit

Table A-9. COST DRIVERS CLASS IX REPARABLES ELEMENTS

10. FY 95 Depot/Intermediate Maintenance Costs

The Operation and Maintenance, Army (OMA) and the Defense Business Operating Fund (DBOF) cost data associated with Major Subordinate Command (MSC) depot maintenance activities are shown on the top half of this cost page. Depot end item maintenance costs are

OMA expenditures while secondary item costs are DBOF expenditures. Depot maintenance activities for end items are grouped as: repair, overhaul, other, and modification. Those for secondary items are grouped as: repair, overhaul, and other. The Other maintenance category for end items and secondary items may include: conversions, renovation, fabrication/manufacture and maintenance assistance. Sources of maintenance activity costs are listed below:

- the MSC depot Master File Maintenance (MFM) records data for end items and secondary items, and
- the Maintenance Data Management System (MDMS) records MSC contract costs.

Row headings are explained in Table A-10, FY 95 Depot Maintenance Costs Elements.

Elements	Explanations
Civilian Labor	The cost of civilian labor
Military Labor	The cost of military labor
Materiel	The cost of materiel to maintain, modify or rebuild an end item or secondary item
Overhead	The sum of base operating costs and indirect maintenance expenses
Contract	The cost of contractor activities
Other	Not direct labor, materiel, or base operating costs (i.e., travel expenses)
Quantity Completed	The number of end items or secondary items completed during the fiscal year
Average Cost	The total cost divided by the quantity completed

Table A-10. FY 95 DEPOT MAINTENANCE COSTS ELEMENTS

The bottom half of this page identifies intermediate maintenance costs by MACOM and Total Army. The intermediate maintenance data represents military labor hours extracted from the Work Order Logistic File (WOLF). FORSCOM and TRADOC civilian data contain civilian labor hours and labor costs from the Directorate of Logistics (DOL) and other contractor maintenance cost reports. The DOL civilian costs are extracted from WOLF and contractor costs are extracted from separate contractor cost reports. Table A-11, FY 95 Intermediate Maintenance Costs Elements, explains the column headings.

Elements	Explanations
MACOM	Major Army Command
AVIM Labor Hours	The military direct labor hours extracted from WOLF
AVIM Labor Costs	The military labor hours multiplied by the E-5 composite standard rate
Civilian Labor Hours	The total DOL civilian direct labor hours extracted from WOLF and civilian contractor labor hours extracted from contractor provided reports
Civilian Labor Costs	The total DOL civilian direct labor costs extracted from WOLF and civilian contractor labor costs extracted from contractor reports
Civilian Labor Cost/Hour	The civilian labor costs divided by the civilian labor hours for FORSCOM and TRADOC installations only

Table A-11. FY 95 INTERMEDIATE MAINTENANCE COSTS ELEMENTS

11. Five Year Depot/Intermediate Maintenance Costs

This page shows two tables containing the Total Army depot/intermediate maintenance costs for five consecutive fiscal years. The top half of the page shows depot maintenance costs for end item and secondary item maintenance activities summed by cost element for five consecutive fiscal years. Similarly, the bottom half shows intermediate maintenance costs for direct/general support maintenance activities and civilian maintenance summed at the MACOM level for five consecutive fiscal years.

12. FY 95 Depot Secondary Item Maintenance - Rebuilds/Overhauls & Repairs Cost Drivers

This page lists secondary item maintenance - rebuilds/overhauls and repairs cost drivers. The MFM contains the secondary item maintenance data recorded at depot level activities. The top half of the page shows the depot maintenance cost drivers for secondary item rebuilds and overhauls. The bottom half of the page shows the depot maintenance cost drivers for secondary item repairs. Table A-12, FY 95 Secondary Item Maintenance - Rebuilds/Overhauls & Repairs Cost Driver Elements, explains the headings in each table.

Elements	Explanations
NSN	A thirteen position number assigned to each item of supply purchased, stocked, or distributed within the Federal Government
Nomenclature	A brief description of the secondary item
FY 95 AMDF Price	The unit price listed for the secondary item
FY 95 Total Cost to Rebuild/Overhaul or Repair	The costs extracted from the Master File Maintenance (MFM) for the secondary items that were rebuilt/overhauled or repaired
FY 95 Qty Completed	The quantity completed during the fiscal year
Avg Cost to Rebuild/ Overhaul or Repair	The total cost to rebuild/overhaul or repair divided by the quantity completed for each secondary item and then ranked in descending order

Table A-12. FY 95 DEPOT SECONDARY ITEM MAINTENANCE - REBUILDS/OVERHAULS & REPAIRS COST DRIVER ELEMENTS

13. Five Year Depot Secondary Item Maintenance - Rebuilds/Overhauls & Repairs Cost Drivers

This page shows the five year depot secondary item maintenance cost drivers for five consecutive fiscal years. This page contains a list of depot maintenance and repair activities NSN cost drivers for five consecutive fiscal years. The top half of the page shows the depot maintenance cost drivers for secondary item rebuilds and overhauls, and the bottom half of the page shows the depot maintenance cost drivers for secondary item repairs for five consecutive fiscal years. Table A-13, Five Year Depot Secondary Item Maintenance - Rebuilds/Overhauls & Repairs Cost Driver Elements, explains the headings in the tables shown on this page.

Elements	Explanations
NSN	A thirteen position number assigned to each item of supply purchased, stocked, or distributed within the Federal Government
Nomenclature	A brief description of the secondary item
FY 95 AMDF Price	The unit price listed for the secondary item
FY 91-95 Total Cost to Rebuild/Overhaul or Repair	The NSN total costs are extracted from the MFM, escalated for each fiscal year prior to FY 95, and then summed
FY 91-95 Qty Completed	The quantity completed during the fiscal year
Avg Cost to Rebuild/ Overhaul or Repair	The total cost to rebuild/overhaul or repair divided by the quantity completed for each secondary item and then ranked in descending order

Table A-13. FIVE YEAR DEPOT SECONDARY ITEM MAINTENANCE - REBUILDS/OVERHAULS & REPAIRS COST DRIVER ELEMENTS

APPENDIX B

Work Breakdown Structure (WBS)

Communications/Electronics Systems

Work Breakdown Structure (WBS)

This appendix displays the level 3 and 4 WBS elements as defined within the guidelines provided by USACEAC in Appendix D of the Department of the Army Cost Analysis Manual, dated August 1992. Level 1 identifies the system as an electronic or automated software system. Level 2 identifies the system as either a prime mission product or a platform integration (this report uses the prime mission product codes). The level 3 code identifies the functional subsystem of the system and the level 4 code identifies the subelements of the subsystem.

Level 1 (Generic Group): Electronic/Automated Software Systems

Level 2 (Weapon System): Prime Mission Product (PMP)

Level 3 WBS Code	Level 3 Element (Subsystem)	Level 4 WBS Code	Level 4 Element (Subelement)
01	Front End (Sensors)		
		01A	Radome
		01B	Antenna
		01C	Transmitter
		01D	Receiver
		01E	Other
02	Processing (ADPE)		
		02A	CPU
		02B	Interfaces
		02C	Other
03	Communications		
		03A	Transmitter
		03B	Receiver
		03C	Antenna
		03D	Terminal
		03E	Radio
		03F	Modems
		03G	Communications Security
		03H	Communications Link
		03J	Other
04	Peripherals		
		04A	Mission Displays
		04B	Printers

Level 3 WBS Code	Level 3 Element (Subsystem)	Level 4 WBS Code	Level 4 Element (Subelement)
04	Peripherals (continued)		
		04C	Disk Drive
		04D	Tape Drive
		04E	Optical Drive
		04F	Other
05	Environmental Support		
		05A	Power Supply
		05B	Cooling/Heating
		05C	Transporter
		05D	Security
		05E	Shelter
		05F	Shelter Mod
		05G	Other
06	PMP Applications Software		
		06A	Software
		06B	Firmware
		06C	BITE
		06D	Other
07	PMP System Software		
08	PMP Integration, Assembly, Test, and Checkout		
09	Other		

APPENDIX C

System Cost Reports By Volume

The preceding document, FY 95 Cost Report, Volume 6a - Communications /Electronics Systems, was produced from the Operating and Support Management Information System (OSMIS) data base. The other six volumes are:

- Volume 1 - Aviation Systems,
- Volume 2 - Combat Systems,
- Volume 3 - Artillery/Missile Systems,
- Volume 4 - Tactical Systems,
- Volume 5 - Engineer/Construction Systems, and
- Volume 6b - Communications/Electronics Systems

The succeeding tables present the systems featured in Volumes 1, 2, 3, 4, 5 and 6b.

VOLUME 1 - AVIATION SYSTEMS

System	MDS	Description
Rotary Wing	AH-1 COBRA	Helicopter, Attack
	AH-64A APACHE	Helicopter, Attack
	CH-47D CHINOOK	Helicopter, Cargo
	EH-60A QUICK FIX	Helicopter, Observation
	OH-58A KIOWA	Helicopter, Observation
	OH-58C KIOWA	Helicopter, Observation
	OH-58D KIOWA WARRIOR	Helicopter, Observation
	OH-6A CAYUSE	Helicopter, Observation
	UH-1H IROQUOIS (HUEY)	Helicopter, Utility
	UH-60A BLACK HAWK	Helicopter, Utility
	UH-60L BLACK HAWK	Helicopter, Utility
Fixed Wing	OV-1D MOHAWK	Airplane, Observation
	RV-1D MOHAWK	Airplane, Reconnaissance
	RU-21H GUARDRAIL	Airplane, Utility
	U-21G UTE	Airplane, Utility

VOLUME 2 - COMBAT SYSTEMS

System	MDS	Description
Tanks	M1 ABRAMS	Tank, Main Battle, 105mm
	M1A1 ABRAMS	Tank, Main Battle, 120mm
	M1A2 ABRAMS	Tank, Main Battle, 120mm
	M60A3	Tank, Combat, 105mm
Combat Vehicles	ARMORED VEHICLE LAUNCH BRIDGE (AVLB)	Launch, M60 Series Tank Chassis Transporter
	M2/M3 BFV	Infantry/Cavalry Fighting Vehicle
	M2A2/M3A2 BFV HS	Infantry/Cavalry Fighting Vehicle, High Survivability
	M9 ACE	Armored Combat Vehicle
	M88A1	Recovery Vehicle, Fully Tracked, Medium
	M106A2	Carrier, Mortar, 107mm
	M113A3	Carrier, Personnel
	M548A3	Carrier, Cargo, Fully Tracked, 6 Ton
	M551A1 SHERIDAN	Armored Reconnaissance Airborne Assault Vehicle
	M577A2	Carrier, Command Post
	M578 LRV	Recovery Vehicle, Fully Tracked, Light
	M728 CEV	Combat Engineer Vehicle
	M901A1 ITV	Improved Tow Vehicle
	M973 SUSV	Carrier, Cargo, Tracked, 1½ Ton
	M1059 SMOKE GENERATOR	Carrier, Smoke Generator

VOLUME 3 - ARTILLERY/MISSILE SYSTEMS

System	MDS	Description
Artillery Weapon Systems	M102 TOWED HOWITZER	Howitzer, Light, Towed, 105mm
	M109A5 HOWITZER	Howitzer, Self-Propelled, Fully Tracked, 155mm
	M109A6 PALADIN	Howitzer, Self-Propelled, Fully Tracked, 155mm
	M110A2 HOWITZER	Howitzer, Heavy Self-Propelled, Fully Tracked, 8in
	M119A1 TOWED HOWITZER	Howitzer, Towed, 105mm
	M198 TOWED HOWITZER	Howitzer, Towed, 155mm
Artillery Support Systems	M981 FIST-V	Fire Support Team Vehicle
	M992A1 FAASV	Field Artillery Ammunition Support Vehicle
Air Defense Artillery Systems	M163A1 VULCAN	Air Defense Artillery, Gun, Self-Propelled, 20mm
	M167A1 TOWED VULCAN	Air Defense Artillery, Gun, Towed, 20mm
Air Defense Missile Systems	AVENGER	Air Defense Guided Missile System, AVENGER
	HAWK	Air Defense Guided Missile System, HAWK
	M220A2 TOW	Launcher, Tubular, Guided Missile, TOW
	M48A2 CHAPARRAL	Air Defense Guided Missile System, CHAPARRAL
	PATRIOT	Surface to Air Missile
Surface to Surface Missile System	MLRS	Multiple Launch Rocket System
Detection System	AN/UAS-12	Tow Night Sight Equipment
	G/VLLD	Target Designator Set

VOLUME 4 - TACTICAL SYSTEMS

System	MDS	Description
Truck Systems (less than 2½ ton)	CUCV	Truck, Utility, Tactical
	HMMWV	Truck, Utility, 1¼ Ton
	M997 HMMWV AMBULANCE	Truck, Utility, 1¼ Ton , Ambulance
	M1097 HEAVY HMMWV	Truck, Weapons Carrier, Heavy HMMWV (HHV)
	M151 JEEP	Truck, Utility, ¼ Ton
	M876 TELEPHONE TRUCK	Truck, Cargo, Tactical, 1¼ Ton Telephone Maintenance
Truck Systems (2½ - 5 ton)	M35 TRUCK	Truck, Cargo, 2½ Ton
	M54 TRUCK	Truck, Cargo, 5 Ton
	M809 TRUCK	Truck, Cargo, 5 Ton
	M939 TRUCK	Truck, Cargo, 5 Ton
Truck Systems (greater than 5 ton)	HEMTT TRUCK	Truck, Chassis, 10 Ton
	M911 HET	Truck, Tractor, 10 Ton
	M915 TRUCK	Truck, Tractor, Line-Haul, 20 Ton
	PLS	Truck, Palletized Load System

VOLUME 5 - ENGINEER/CONSTRUCTION SYSTEMS

Systems	MDS	Description
Engineer/Construction Equipment	CAT D5	Tractor, Fully Tracked, Low Speed, Diesel, Light
	CAT D7F	Tractor, Fully Tracked, Low Speed, Diesel, Medium
	CAT D7G	Tractor, Fully Tracked, Low Speed, Diesel, Medium
	CAT D8A	Tractor, Fully Tracked, Low Speed, Diesel, Heavy
	CAT 130GS (GRADER)	Grader, Road, Motorized, Diesel
	CLK 5YD	Loader, Scoop, 5 Yard
	JIC 2YD	Loader, Scoop, 2 Yard
	CAT 621B (SCRAPER)	Scraper, Elevating, Road, Motorized, Diesel
	SEE	Small Emplacement Excavator
Materiel Handling Equipment	CRANE, 7½ Ton	Crane, Wheel Mounted, Hydraulic, Light, 7½ Ton
	CRANE, 20 Ton	Crane, Wheel Mounted, 20 Ton With Boom Crane
	CRANE, 25 Ton	Crane, Wheel Mounted, 25 Ton With Boom Crane
	CRANE, 140 Ton	Crane, Truck Mounted, 140 Ton With Boom & Equipment
	FORKLIFT, VARIABLE REACH, RT	Truck, Forklift, 3 Ton, Variable Reach, Rough Terrain
	FORKLIFT, 6k	Truck, Forklift, 3 Ton
	FORKLIFT, 10k	Truck, Forklift, 5 Ton
Power Generation Equipment	MEP-003A (10 KW GEN)	Generator Set, Diesel Engine, 10 KW
	MEP-005A (30 KW GEN)	Generator Set, Diesel Engine, 30 KW
	MEP-006A (60 KW GEN)	Generator Set, Diesel Engine, 60 KW
	MEP-016B (3 KW GEN)	Generator Set, Diesel Engine, 3 KW
Watercraft Equipment	BOAT BRIDGE	Boat Bridge, Erection, Inboard Engine
	LCM 69 FT	Landing Craft Maintenance, 69’
	LCU	Landing Craft Utility, 115’
	LCU RO/RO	Landing Craft Utility, Roll On Roll Off
Other Equipment	M139 MINE DISPENSER	Dispenser, Mine
	ROWPU	Water Purification

VOLUME 6B - COMMUNICATIONS/ELECTRONICS SYSTEMS

Systems	MDS	Description
Maintenance Shops, Communication Centers, and Data Processing Systems	AN/ASM-147C	Electronics, Field Maintenance Shop, Shelter Mounted
	AN/MSC-31	Communications Operations Center, Shelter Mounted
	AN/MSC-32	Communications Operations Center, Shelter Mounted
	AN/MYQ-4	Data processing System, Automated
Radar Sets	AN/PPS-5	Radar Set, Ground Surveillance, Less Power
	AN/TPQ-36 FIREFINDER	Radar Set, Artillery, Rocket, Mortar
	AN/TPQ-36 FIREFINDER	Radar Set, Artillery
Communication Control Centers	AN/TSQ-84	Communications, Technical Control Center, Shelter Mounted
	AN/TYQ-35 MSE SCC	System Command Center (SCC), Shelter Mounted
Communication Terminals	AN/UGC-74A (COMM TERM)	Communications Terminal
	AN/UXC-7 FAX	Lightweight Digital Facsimile, Transceiver, Low Power
Positions Locating Systems and Sets	AN/USQ-70 PADS	Position Azimuth Determining Systems (PADS)
Fire Direction Systems and Sets	AN/TSQ-138	Trailblazer Master Control Set
	AN/GYK-29 BCS	Battery Computer System, Technical Fire Directiomn
Air Traffic Control Systems and Centers	AN/TMQ-31	Meterological Data Systems (MDS)
	AN/TSW-7A	Mobile, Tactical Air Traffic Control Center
Communications Intercept Set	AN/GSQ-187	Sensor Mounting Set (SMS)
Multiplexers	TD-1234(P)	Remote Multiplexer Combiner